ESSROC - Biomass

Dholakia, Umesh

From: Angel Berrios [Angel.Berrios@erm.com]
Sent: Monday, August 12, 2013 7:35 AM
To: Dholakia, Umesh
Cc: Beatriz.Rivera@essroc.com; leimarysdelgado@jca.gobierno.pr
Subject: Essroc GHG determination
Attachments: 0171815 Essroc Estimados de Emision GHG Combustible Biomasa.pdf

Umesh,

The following is the analysis that was performed to determine the applicability of Green House Gases (GHG) submitted to EQB. This determination was made considering the court decision to vacate the exemption to comply with GHG federal regulation for biomass burning facilities. In this case the determination was made since we have a construction permit pending at EQB and the Air Quality Area requested such determination.

Essroc would like to make clear that if EPA issued new guidance or decide to continue with the biomass exemption a new assessment will be performed to determine the applicability of PSD or will continue to be under the umbrella of the exemption.

The evaluation was performed using the following guidance document: ***PSD and Title V Permitting Guidance for Greenhouse Gases***. This guidance document establish that:

PSD applies to GHGs, if:

Part A

1. *Modification is otherwise subject to PSD (for another regulated NSR pollutant), and*
2. *Has a GHG emissions increase and net emissions increase:*

a. *Equal to or greater than 75,000 TPY CO2e, and*
b. *Greater than -0- TPY mass basis*

OR BOTH:

Part B

1. ***The existing source has a PTE equal to or greater than:***

a. ***100,000 TPY CO2e and***
b. ***100/250 TPY mass basis***

and

2. ***Modification has a GHG emissions increase and net emissions increase:***

a. ***Equal to or greater than 75,000 TPY CO2e, and***
b. ***Greater than -0- TPY mass basis***

The following is the PSD determination for GHG.

For the purpose of Part A, Essroc submitted a Non PSD applicability that was approved by EPA on March 29, 2013. Since the use of biomass as a fuel is not considered a significant increase for the purpose of PSD (criteria pollutants) Part A.1, does not apply. Therefore, Part A. is not applicable to the use biomass as a fuel in the kiln.

Since Part A is not applicable then we evaluate Part B for GHG PSD purposes. Essroc is considered a major source for GHG. Since Essroc is considered a major source of GHG, we evaluate for Part B.2. to determine if the emissions are above the ***75,000 TPY CO2e*** and the mass emissions of the is greater than 0 TPY.

The following table includes the results of Essroc calculation regarding GHG. According to the evaluation certainly the emissions of GHG are above 0 TPY but the modification is below the 75,000 TPY ***CO2e*** threshold making the modification not subject to the requirements of GHG major modification.

PTE Emissions Green House Gases Wood & Wood Residuals Essroc Dorado, P.R.

Pollutants	Total Emissions Biomass (tons/year)	Total Emissions 2004 & 2005 (tons/year)	Net Emission Increase (tons/year)	Global Warming Potential	Total Em CO2eq (to
CO2	111,317.00	228,637.37	(117,320.37)	1.00	(11
CH4	37.98	24.29	13.69	21.00	
N2O	4.98	3.53	1.45	310.00	
					(11

If you have any question you can contact me or Beatriz Rivera at beatriz.rivera@essroc.com.

Angel

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PTE Emissions Green House Gases Wood & Wood Residuals
Essroc Dorado, P.R.

Pollutants	Total Emissions Biomass (tons/year)	Total Emissions 2004 & 2005 (tons/year)	Net Emission Increase (tons/year)	Global Warming Potential[2]	Total Emissions CO2eq (tons/year)	Major Source Threshold (ton/yr)	Major Source (Yes/No)
CO2	111,317.00	228,637.37	(117,320.37)	1.00	(117,320.37)		
CH4	37.98	24.29	13.69	21.00	287.40		
N2O	4.98	3.53	1.45	310.00	449.88		
					(116,583.09)	75,000.00	No

1. The fuel emission factors for each pollutant are listed on 40 CFR Part 98 Subpart C Appendix Table C-1 and C-2.
2. The Global Warming Potential for each of the pollutants are listed on 40 CFR Part 98 Subpart A Appendix Table A.

Biomass

Overall Annual Biomass I Consumption Limit for Kiln: 70,000 ton/year

Pollutant	tons/ year	mtons/year	GWF	COeq mtons/yr	COeq tons/year
CO2	111,317.00	100,985.08	1	100,985.08	111,317.00
CH4	37.98	34.45	21	723.48	797.49
N2O	4.98	4.52	310	1,401.73	1,545.15
			Total CO2eq	103,110.29	113,659.64

Heating Value Wood Biomass: 15.38 mmBTU / short ton

Total CO2e Diesel Fuel 103,110.29 mtons/yr × 1000 kg / 1 m ton × 2.204623 lb / 1 kg × ton / 2000 lb = Total CO2eq 113659.6371 ton/year

Biomass Worst Case Wood & Wood Residuals

Default CO2 Emission Factor: 93.8 kg CO2 / mmBTU

Default CH4 Emission Factor: 0.032 kg CH4 / mmBTU

Default N2O Emission Factor: 0.0042 kg N2O / mmBTU

I CERTIFY THAT I AM REGISTERED AND AUTHORIZED TO PRACTICE MY PROFESSION IN PUERTO RICO, AND THAT, TO THE BEST OF MY KNOWLEDGE, THE EMISSION CALCULATIONS AND THE DATA OF FUEL CONSUMPTION CONTAINED HERE IN ARE TRUE, COMPLETE, AND ACCURATE.

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LICENSE NUMBER

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Coal

Overall Annual Fuel Consumption Kiln: 79,842.5 ton/year

Pollutant	tons/year	mtons/yr	GWF	mtons COeq/yr	tons CO2e/year
CO2	228158	207,416.33	1	207,416.33	228,637.37
CH4	24.2393	22.04	21	462.75	510.09
N2O	3.525717	3.21	310	993.61	1,095.27
			Total	208,872.69	230,242.73

Coal Anthracite Heating Value: 25.09 mmBTU / short ton

Oil Spec

Overall Annual Fuel Consumption Kiln: 1,167,791 gal/year

			GWF	Total mtons COeq/yr	tons CO2e/year
11,666.23	mtons/yr	CO2	1	11,666.23	12,859.82
0.47	mtons/yr	CH4	21	9.93	10.95
0.09	mtons/yr	N2O	310	29.32	32.32
				11,705.49	12,903.09

Used Oil On Spec Heating Value: 0.135 mmBTU / short ton

Total CO2e LPG Fuel						
220,578.18 mtons / year	1000 kg / 1 m ton	2.204623 lb / 1 kg	ton / 2000 lb		**243145.8231** ton / year

	Coal	Used Oil
Default CO2 Emission Factor:	103.54 kg CO2 / mmBTU	74 kg CO2 / mmBTU
Default CH4 Emission Factor:	0.011 kg CH4 / mmBTU	0.003 kg CH4 / mmBTU
Default N2O Emission Factor:	0.0016 kg N2O / mmBTU	0.0006 kg N2O / mmBTU

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